

TABLE II-continued

Example 7	
COSAN 158	2 lb.
TROYSAN 174	2 lb.
Total Water	1361 Gal.
Viscosity	700 Bu.
Density (lb./gal.)	13.97

The joint compound produced above was subjected to all the tests enumerated above with respect to Examples 1-6. The joint compound proved to have excellent properties in all of the tests made. The adhesion and non-cracking properties were especially good, even though no mica was utilized in the formulation. The results of the tests indicated that the joint compound of the present invention, particularly as prepared in Example 7, is eminently suitable for commercial use.

Table III below gives the lower and upper limits between which the various ingredients may be used for producing a useful lightweight joint compound according to the invention. The materials are listed in percent by weight of the dry ingredients in the formula. For materials such as emulsion binders or other ingredients supplied as emulsions the water is not included in the percentage, but only the solids content or active portions of the emulsion are set out as constituents.

TABLE III

	Lower Limit	Upper Limit
Silicone Treated Perlite	3.5%	25%
Non-leveling Agent	0.5%	7%
Thickener	0.3%	1.8%
Binder	0.5%	10%
Fillers	38%	93%

The lightweight joint compound of the present invention has many advantages over joint compounds disclosed in the prior art. The greatest advantage is that the material is lighter in weight than conventional joint compounds. Consequently, transportation costs are less. Additionally, because of its light weight, the joint compound can be carried around more easily in buckets, the trowel, or a bazooka and worked with by workmen. When the material of the present invention is utilized, at the end of an eight hour day the workmen are considerably less tired. After the joint compound has been applied and dried, it is much easier to sand than conventional joint compounds. After sanding, a smooth finished wall is obtained. The present joint compound also has a great advantage over conventional joint compounds in that it is lower in shrinkage. Because of this property, it is not necessary to utilize talc or mica, common ingredients utilized in conventional joint compound to prevent cracking. The present joint compound also has very good application properties, generally better than those of conventional joint compounds. The present material has excellent adhesive properties and excellent coating properties. In fact, it has been found that the conventional three coats normally required of a conventional joint compound for covering gypsum board metal corner beads can be reduced to two coats, thereby reducing labor and material costs.

It is to be understood that the invention is not to be limited to the exact details of operation or materials described, as obvious modifications and equivalents will be apparent to one skilled in the art.

Invention is claimed as follows:

1. A lightweight joint compound having properties suitable for use in finishing joints between the edges of

adjacent wallboards, said joint compound consisting essentially of:

- (1) a filler selected from the group consisting of calcium carbonate and calcium sulfate,
- (2) a non-leveling agent,
- (3) expanded perlite which has been treated with a silicone compound to render it water-insensitive present in an amount of from about 3.5% to about 25% based on the dry weight of said joint compound,
- (4) a thickener,
- (5) a binder, and
- (6) sufficient water to adjust the viscosity to render said joint compound suitable for use.

2. A lightweight joint compound according to claim 1, wherein said filler is present in an amount from about 38% to about 93% by dry weight of said joint compound.

3. A lightweight joint compound according to claim 2, wherein said filler is calcium carbonate.

4. A lightweight joint compound according to claim 3, wherein said filler is calcium sulfate.

5. A lightweight joint compound according to claim 1, wherein said non-leveling agent is present in an amount of from about 0.5% to about 7% by dry weight of said joint compound.

6. A lightweight joint compound according to claim 5, wherein said non-leveling agent is attapulgus clay.

7. A lightweight joint compound according to claim 5, wherein said non-leveling agent is a mixture of a clay and amylopectin starch in a ratio by weight of about 1:5.

8. A lightweight joint compound according to claim 1, wherein said binder is present in an amount of from about 0.5% to about 10% by dry weight of said joint compound.

9. A lightweight joint compound according to claim 8, wherein said binder is polyvinyl acetate.

10. A lightweight joint compound according to claim 1, wherein said thickener is present in an amount of from about 0.3% to about 1.8%.

11. A lightweight joint compound according to claim 10, wherein said thickener is hydroxypropyl methylcellulose.

12. A lightweight joint compound according to claim 10, wherein said thickener is hydroxyethylcellulose.

13. A lightweight joint compound according to claim 1, which is substantially free of mica.

14. A method of joining the edges of adjacent gypsum wallboard panels which comprises:

A. applying a lightweight joint compound over said edges consisting essentially of:

- (1) a filler selected from the group consisting of calcium carbonate and calcium sulfate,
- (2) a non-leveling agent,
- (3) expanded perlite treated with a silicone compound to render it water-insensitive, in an amount of from about 3.5% to about 25% of the dry weight of said joint compound,
- (4) a thickener,
- (5) a binder, and
- (6) water,

B. permitting said joint compound to dry, and

C. sanding said joint compound to achieve a smooth joint.

15. A method according to claim 14, wherein said filler is present in an amount from about 38% to about 93% by dry weight of said joint compound.